U.S. Department of the Interior U.S. Geological Survey

METAL INDUSTRY INDICATORS

February 1997

Indicators of Domestic Primary Metals, Steel, Aluminum, and Copper Activity

Slow Growth Ahead for Metal Prices

The leading index of metal prices advanced 0.8% to 96.3 in December, the latest month for which it is available, from a revised 95.5 in November. Its 6-month smoothed growth rate, a compound annual rate that measures near-term trend, moved up to -0.1% from -1.9% in November.

The growth rate of -0.1% means that the metals price leading index is out of the declining-growth range for the first time since last May.

A 6-month smoothed growth rate below -1.0% for a leading index usually means decreasing growth in the near future, while a growth rate above +1.0% usually means increasing growth.

The increase in the December leading index was due almost entirely to one index component, growth in the deflated value of U.S. M2 money supply. Changes in the other two index components available for December were not significant. These components are growth in the deflated value of new orders for nonferrous metals produced in the United States and the index of permits for new U.S. housing units authorized. The fourth index component, growth in the deflated value of total debt of the U.S. nonfinancial sector, was not available for the December calculation.

Although money supply growth was mainly responsible for the increase in December's leading index, the other index components have also seen growth since October. Moreover, all four components contributed to a relatively strong increase in the leading index for November. At this time, the leading index appears to be pointing to slow growth for most metal prices in the near term.

Nonferrous metal prices were higher at the end of January, due to the sharp increases that occurred in the first half of the month. However, growth slowed in the last half of January, with prices retreating or holding steady into early February. The 6-month smoothed growth rate of the deflated value of inventories for nonferrous metal products held in the United States fell for the fourth straight month in December, the latest month for which data are available. This slowdown in inventory growth is another sign that metal prices may be headed higher.

The metals price leading index signals significant changes in price growth about 8 months in advance. The business cycle and inventories are only two factors in price determination. Other factors that affect prices include speculation, strategic changes in metals production, stockpiling, and production costs.

Leading Indicators (6 months ago and latest month)		Outlook
Leading Index of Metal Prices		
June '96	96.0	The leading index points to slow growth for most metal prices in the near term.
Dec '96	96.3	
Primary Metals Leading Index		
July '96	119.8	Modest growth is likely for the domestic primary metals industry in the coming months.
Jan '97	121.9	
Steel Leading Index		
June '96	103.7	The steel industry is likely to experience flat growth in the near term.
Dec '96	103.6	
Aluminum Mill Products Leading Index		Flat growth for aluminum mill products and modest growth in primary and secondary aluminum activities are likely for the near future.
June '96	139.6	
Dec '96	140.7	
Copper Leading Index		
June '96	118.1	The copper industry could see a pickup in growth over the next few months.
Dec '96	120.0	

NOTE: Historical data back to 1948 for 12 of the indexes in Metal Industry Indicators (MII) are now on the World Wide Web. The URL for the MII is: http://minerals.er.usgs.gov/minerals/pubs/mii/

U.S. Industries Continue to Consume More Imports of Primary Aluminum

Each month, we compute leading and coincident indexes for primary and secondary aluminum *(continued on page 2)*

(continued from page 1) activity in the United States. Charts and tables for these indexes are in a separate file. On average, the leading index predicts major changes in the coincident index about 6 months in advance. The coincident index measures current activity by U.S. producers.

During the last 20 years, the primary and secondary aluminum leading index, an indicator of future aluminum consumption, has been on an upward trend. In contrast, the trend of the coincident index, an indicator of current domestic production, is flatter, and the index has experienced two serious declines and one minor decline. However, consumption of aluminum in the United States did not drop sharply when the coincident index fell.

Consumption of primary aluminum remained about the same or even increased because imports, which are not part of the coincident index, helped meet U.S. demand for aluminum. The chart on page 12 shows the 3-month moving average of an index of imports of primary aluminum, along with the leading and coincident indexes for primary and secondary aluminum. During the years 1985 through 1987, for example, the coincident index declined dramatically while imports increased. Moreover, import dependencies as a percentage of apparent U.S. consumption averaged 22% during this period, compared to almost 0% from 1988 through 1991 when the United States was mostly a net exporter of aluminum.

Imports began increasing again in 1992 when aluminum started arriving in the United States from the former Soviet Union. From 1993 through 1995, the latest years for which data are available, import dependencies as a percentage of apparent U.S. consumption averaged 25%.

With the U.S. dollar now stronger, it is possible that imports of primary aluminum, which more than doubled from 1991 to 1995, will remain at high levels. As such, we will continue to plot the import index along with the leading and coincident indexes on Chart 10, which is available on MINES FaxBack and the World Wide Web. *(continued on page 12)*

Table 1.
Leading Index of Metal Prices and Growth Rates of the Nonferrous Metals Price Index, Inventories of Nonferrous Metal Products, and Selected Metal Prices

		Six-Month Smoothed Growth Rates				
	Leading Index of Metal Prices (1967=100)	MII Nonferrous Metals Price Index	U.S. Nonferrous Metal Products Inventories (1982$)	Primary Aluminum	Primary Copper	Steel Scrap
1995						
December	97.8	-9.2	4.0	-13.4	-6.9	-0.7
1996						
January	96.5	-19.4	6.1	-22.8	-21.2	10.6
February	97.3	-16.4	7.9	-17.5	-20.4	6.6
March	97.6	-11.4	5.6	-9.6	-18.8	-3.3
April	97.1	-9.2r	4.8	-12.5	-9.9	-4.8
May	95.7	-12.8	3.8	-14.1	-16.6	1.1
June	96.0r	-29.3	6.1	-21.6	-45.4	-2.2
July	96.3r	-24.1r	10.6	-16.6	-39.9	-7.6
August	96.2r	-20.9r	10.7	-15.6	-33.3	-5.8
September	95.2r	-26.9r	9.6	-23.5	-37.6	-1.3
October	94.7r	-21.1	7.8	-16.6	-31.7	-13.3
November	95.5r	2.2	6.1r	-2.8	11.8	-26.3
December	96.3	-6.9r	3.3	-2.0	-11.2	-21.8
1997						
January	NA	6.5	NA	9.8	6.6	-6.6

r *- Revised*

Note: The components of the Leading Index of Metal Prices are the 6-month smoothed growth rates of the following: 1, the deflated value of new orders for nonferrous metals; 2, the deflated value of total debt of U.S. nonfinancial sectors; 3, the index of new private housing units authorized; and 4, the deflated value of U.S. M2 money supply. The Metal Industry Indicators (MII) Nonferrous Metals Price Index measures changes in end-of-the-month prices for primary aluminum, copper, lead, and zinc traded on the London Metal Exchange (LME). The steel scrap price used is the price of No. 1 heavy melting. Inventories consist of the deflated value of finished goods, work in progress, and raw materials for U.S.-produced nonferrous metals and nonferrous metal products. Six-month smoothed growth rates are based on the ratio of the current month's index or price to its average over the preceding 12 months, expressed at a compound annual rate.

Sources: U.S. Geological Survey (USGS); American Metal Market (AMM); the London Metal Exchange (LME); and the Bureau of the Census

Link To:

Chart 1.

Table 2.
The Primary Metals Industry Indexes and Growth Rates

	Leading Index		Coincident Index	
	(1977 = 100)	Growth Rate	(1977 = 100)	Growth Rate
1996				
February	119.4r	3.0r	106.7r	1.5r
March	120.0r	3.7r	106.8r	1.5r
April	120.2r	3.5	107.2r	2.1r
May	120.2r	3.0r	107.5r	2.5r
June	120.7r	3.1	107.6r	2.6
July	119.8r	1.2r	108.2r	3.2r
August	120.5r	2.1r	108.9r	4.0r
September	120.2r	1.4r	109.0r	3.6r
October	120.1r	1.0r	109.5r	4.1r
November	120.3r	1.0r	108.9	2.4
December	122.1r	3.7r	109.8	3.6
1997				
January	121.9	2.8	NA	NA

r *- Revised*

Note: Growth rates are expressed as compound annual rates based on the ratio of the current month's index to the average index during the preceding 12 months.

Table 3.
The Contribution of Each Primary Metals Index Component to the Percent Change in the Index from the Previous Month

Leading Index	**December**	**January**
1. Average weekly hours, primary metals (SIC 33)	0.5r	-0.2
2. S&P stock price index, machinery, diversified	0.0	0.1
3. Ratio of price to unit labor cost (SIC 33)	0.3	NA
4. JOC metals price index growth rate	0.0r	0.3
5. New orders, primary metals, (SIC 33) 1982$	0.1	NA
6. Index of new private housing units authorized by permit	0.0	NA
7. Growth rate of U.S. M2 money supply, 1992$	0.3	NA
8. Purchasing Managers' Index	0.2r	-0.4
Trend adjustment	0.0	0.0
Percent change (except for rounding differences)	1.4r	-0.2

Coincident Index	**November**	**December**
1. Industrial production index, primary metals (SIC 33)	-0.6r	0.5
2. Total employee hours, primary metals (SIC 33)	-0.3	0.4
3. Value of shipments, primary metals, (SIC 33) 1982$	0.1r	-0.1
Trend adjustment	0.1	0.1
Percent change (except for rounding differences)	-0.7r	0.9

Sources: Leading: 1, Bureau of Labor Statistics; 2, Standard & Poor's; 3, Center for International Business Cycle Research, Bureau of Labor Statistics, and Federal Reserve Board; 4, Journal of Commerce; 5, Bureau of the Census and U.S. Geological Survey; 6, Bureau of the Census and U.S. Geological Survey; 7, Federal Reserve Board, Conference Board, and U.S. Geological Survey; and 8, National Association of Purchasing Management. Coincident: 1, Federal Reserve Board; 2, Bureau of Labor Statistics and U.S. Geological Survey; 3, Bureau of the Census and U.S. Geological Survey. All series are seasonally adjusted, except 2, 3, and 4 of the leading index.

NA*: Not available* ***r*** *- Revised*

Note: A component's contribution, shown in Tables 3, 5, 7, and 9, measures its effect, in percentage points, on the percent change in the index. Each month, the sum of the contributions plus the trend adjustment equals (except for rounding differences) the index's percent change from the previous month.

Links To:

Chart 2.

Chart 3.

Table 4.
The Steel Industry Indexes and Growth Rates

	Leading Index		Coincident Index	
	(1977 = 100)	Growth Rate	(1977 = 100)	Growth Rate
1996				
January	102.6r	1.0r	97.3r	-0.2r
February	103.4r	2.7r	97.8r	0.9r
March	103.0r	1.7r	97.5r	0.4r
April	103.5r	2.4r	97.9r	1.2r
May	103.5r	2.1r	98.3r	1.9r
June	103.7r	2.1	98.8r	2.7
July	102.7r	-0.2r	98.9r	2.7r
August	102.3r	-1.1r	98.5r	1.5r
September	102.3r	-1.2	98.5r	1.2
October	101.6r	-2.3r	98.9r	1.7r
November	102.4r	-0.7r	98.6r	0.8r
December	103.6	1.3	99.2	1.9

r *- Revised*

Note: Growth rates are expressed as compound annual rates based on the ratio of the current month's index to the average index during the preceding 12 months.

Table 5.
The Contribution of Each Steel Index Component to the Percent Change in the Index from the Previous Month

Leading Index	**November**	**December**
1. Average weekly hours, blast furnaces and basic steel products (SIC 331)	0.1	0.1
2. New orders, steel works, blast furnaces, and rolling and finishing mills, 1982$, (SIC 331)	-0.1	0.2
3. Shipments of household appliances, 1982$	0.0r	0.2
4. S&P stock price index, steel companies	0.1	0.0
5. Industrial production index for automotive products	0.3r	0.0
6. Growth rate of the price of steel scrap (#1 heavy melting, $/ton)	-0.2	0.0
7. Index of new private housing units authorized by permit	0.2	0.0
8. Growth rate of U.S. M2 money supply, 1992$	0.2	0.3
9. Purchasing Managers' Index	0.2r	0.2
Trend adjustment	0.0	0.0
Percent change (except for rounding differences)	0.8r	1.0
Coincident Index		
1. Industrial production index, basic steel and mill products (SIC 331)	-0.5r	0.4
2. Value of shipments, steel works, blast furnaces, and rolling and finishing mills (SIC 331), 1982$	0.0	0.2
3. Total employee hours, blast furnaces and basic steel products (SIC 331)	0.1r	0.0
Trend adjustment	0.1	0.1
Percent change (except for rounding differences)	-0.3r	0.7

Sources: Leading: 1, Bureau of Labor Statistics; 2, Bureau of the Census and U.S. Geological Survey; 3, Bureau of the Census and U.S. Geological Survey; 4, Standard & Poor's; 5, Federal Reserve Board; 6, Journal of Commerce and U.S. Geological Survey; 7, Bureau of the Census and U.S. Geological Survey; 8, Federal Reserve Board, Conference Board, and U.S. Geological Survey; and 9, National Association of Purchasing Management. Coincident: 1, Federal Reserve Board; 2, Bureau of the Census and U.S. Geological Survey; 3, Bureau of Labor Statistics and U.S. Geological Survey. All series are seasonally adjusted, except 4 and 6 of the leading index.

NA*: Not available* ***r*** *- Revised*

Links To:

Chart 4.

Chart 5.

Table 6.
The Aluminum Mill Products Industry Indexes and Growth Rates

	Leading Index		Coincident Index	
	(1977 = 100)	Growth Rate	(1977 = 100)	Growth Rate
1996				
January	134.9r	-0.3r	118.9r	-6.1r
February	136.8r	2.2	122.0r	-0.7r
March	137.1r	2.4r	123.5r	1.7r
April	138.4r	3.7r	122.6r	0.4r
May	139.1r	3.9	123.7r	2.1r
June	139.6r	3.8r	121.7r	-0.8r
July	139.0r	2.3r	122.8r	1.0r
August	139.4r	2.3r	124.1r	3.0r
September	140.9r	4.1	125.3r	4.5r
October	138.2r	0.0	123.8r	1.9r
November	139.9r	2.1r	121.4r	-1.8r
December	140.7	3.1	122.8	0.4

r *- Revised*

Note: Growth rates are expressed as compound annual rates based on the ratio of the current month's index to the average index during the preceding 12 months.

Table 7.
The Contribution of Each Aluminum Mill Products Index Component to the Percent Change in the Index from the Previous Month

Leading Index	**November**	**December**
1. Average weekly hours, aluminum sheet, plate, and foil (SIC 3353)	-0.2	-0.4
2. Index of new private housing units authorized by permit	0.2	0.0
3. Industrial production index for automotive products	0.4r	0.0
4. Construction contracts, commercial and industrial (mil. sq. ft.)	0.9	0.0
5. Net new orders for aluminum mill products (mil. lbs.)	-0.9	0.1
6. Growth rate of U.S. M2 money supply, 1992$	0.3r	0.4
7. Purchasing Managers' Index	0.3	0.2
T rend adjustment	0.1	0.1
Percent change (except for rounding differences)	1.1r	0.4
Coincident Index		
1. Industrial production index, aluminum sheet, plate, and foil (SIC 3353)	-1.7r	1.3
2. Total employee hours, aluminum sheet, plate, and foil (SIC 3353)	-0.1r	-0.4
3. Shipments of aluminum mill products (mil. lbs.)	-0.3r	0.1
Trend adjustment	0.1r	0.1
Percent change (except for rounding differences)	-2.0r	1.1

Sources: Leading: 1, Bureau of Labor Statistics; 2, Bureau of the Census and U.S. Geological Survey; 3, Federal Reserve Board; 4, F.W. Dodge, Division of McGraw-Hill Information Systems Company; 5, The Aluminum Association, Inc. and U.S. Geological Survey; 6, Federal Reserve Board, Conference Board, and U.S. Geological Survey; 7, National Association of Purchasing Management. Coincident: 1, Federal Reserve Board; 2, Bureau of Labor Statistics and U.S. Geological Survey; 3, Bureau of the Census and U.S. Geological Survey. All series are seasonally adjusted.

NA: Not Available *r - Revised*

Links To:

Chart 6.

Chart 7.

Table 8.
The Copper Industry Indexes and Growth Rates

	Leading Index		Coincident Index	
	(1977 = 100)	Growth Rate	(1977 = 100)	Growth Rate
1996				
January	116.0r	-1.0	112.4r	1.0r
February	117.7r	2.1	112.3r	0.8r
March	118.5r	3.0	111.9r	-0.1r
April	119.3r	4.0	112.6r	1.2r
May	119.2r	3.2	112.8r	1.2r
June	118.1r	1.0	112.5r	0.7r
July	118.0r	0.6	113.0r	1.3r
August	117.9r	0.3	112.3r	0.0r
September	118.0r	0.3r	113.8r	2.4
October	118.4r	0.9	115.2r	4.4r
November	120.4r	3.7	113.1r	0.5r
December	120.0	2.7	114.1	2.0

r *- Revised*

Note: Growth rates are expressed as compound annual rates based on the ratio of the current month's index to the average index during the preceding 12 months.

Table 9.
The Contribution of Each Copper Index Component to the Percent Change in the Index from the Previous Month

Leading Index	**November**	**December**
1. Average weekly overtime hours, rolling, drawing, and extruding of copper (SIC 3351)	-0.2	0.3
2. New orders, nonferrous and other primary metals, 1982$	0.1	0.0
3. MII stock price index, copper companies	0.2	-0.1
4. Ratio of shipments to inventories, electronic and other electrical equipment (SIC 36)	0.4	0.0
5. Growth rate of the LME spot price of primary copper	1.0	-0.5
6. Index of new private housing units authorized by permit	0.2	0.0
Trend adjustment	0.0	0.0
Percent change (except for rounding differences)	1.7	-0.3
Coincident Index		
1. Industrial production index, primary smelting and refining of copper (SIC 3331)	-0.4r	0.1
2. Total employee hours, rolling, drawing, and extruding of copper (SIC 3351)	-0.7r	0.5
3. Copper refiners' shipments (short tons)	-0.8r	0.2
Trend adjustment	0.1	0.1
Percent change (except for rounding differences)	-1.8	0.9

Sources: Leading: 1, Bureau of Labor Statistics; 2, Bureau of the Census and U.S. Geological Survey; 3, U.S. Geological Survey; 4, Bureau of the Census and U.S. Geological Survey; 5, London Metal Exchange and U.S. Geological Survey; 6, Bureau of the Census and U.S. Geological Survey. Coincident: 1, Federal Reserve Board; 2, Bureau of Labor Statistics; 3, American Bureau of Metal Statistics, Inc. and U.S. Geological Survey. All series are seasonally adjusted, except 3 and 5 of the leading index.

NA*: Not available* ***r*** *- Revised*

Links To:

Chart 8.

Chart 9.

Link To
Special Chart

leading index components declined in December. It is too early to tell if the December increase in the steel leading index is a signal of stronger growth in U.S. steel activity. However, the weak growth in the leading index during the last half of 1996 indicates flat growth in steel activity in the coming months.

The aluminum mill products leading index increased 0.6% in December to 140.7 from a revised 139.9 in November. Its 6-month smoothed growth rate improved to 3.1% from a revised 2.1% in November. The primary and secondary aluminum leading index also increased in December, rising 1.1% to 227.5 from a revised 225.0 in November. Strong growth in the industrial production index for aluminum sheet, plate, and foil accounted for almost all of the net increase in the index. The aluminum leading indexes point to patterns of flat growth in aluminum mill products activity and modest growth in primary and secondary aluminum activity.

(continued from page 2)

Latest Metal Industry Leading Indexes Are Mixed, But Growth Trends Improve

December was generally a positive month for the metal industry leading indexes, with all of the indexes posting 6-month smoothed growth rates above +1.0%. When these growth rates are above +1.0%, they imply that metal industry activity should increase in the coming months.

One reason that the leading indexes are slightly stronger is because of a revision in the industrial production indexes, which are used in most of the leading and coincident indexes. This revision shows higher growth in the primary metals industry during 1995 and 1996, with much stronger growth occurring in the nonferrous metal industries in 1996.

The primary metals leading index, which is the most current leading index, edged down 0.2% in January to 121.9 from 122.1 in December. Two of the four available leading indicators declined in January, with the Purchasing Managers' Index making the largest negative contribution to the net decline. The January index must be treated as preliminary because only four of the eight primary metals leading indicators were available. Despite the decrease in the leading index, the 6-month smoothed growth rates for December and January suggest modest growth for primary metals activity in the near term.

The steel leading index for December increased 1.2%, moving to 103.6 from a revised 102.4 in November. December is the latest month that leading indexes for steel, aluminum, and copper are available. The 6-month smoothed growth rate for steel is now at 1.3%, the first time it has been above +1.0% since last June. None of the steel

The copper leading index was the only metal industry leading index to decrease in December, dipping 0.3% to 120.0 from a revised 120.4 in November. The biggest factor in the decline was a decrease in the growth rate of the LME spot price for copper in December. However, this copper price was about 8.0% higher at the end of January than it was at the end of December. Moreover, the trends of other indicators in the leading index, e.g., new orders, building permits for new housing, and shipments of electronic and electrical equipment, indicate more demand for copper. The copper industry could see a pickup in growth over the next few months.

The next Metal Industry Indicators summary is scheduled for release on MINES FaxBack at 10:00 a.m. ET, Friday, March 21. Access MINES FaxBack from a touch-tone telephone attached to a fax machine by dialing 703-648-4999.

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